

A wireframe model of a car, rendered in a light blue color, is centered in the background. The car is shown from a side profile, facing right. The background is a solid blue color with several concentric white circles and diagonal lines, creating a technical or futuristic aesthetic.

# **The American Center for Mobility**

WILLOW RUN, YPSILANTI, MICHIGAN

# The American Center for Mobility - Summary

- **Connected and Automated Vehicle (CAV) technology, including connected Infrastructure, will revolutionize the transportation of people and goods in the next 5-10 years**
- **If implemented purposely, these technologies can simultaneously increase safety and mobility, and decrease energy use and emissions on a national scale**
- **Significant technical and policy challenges remain to be solved, including methods for safe testing, validation, and verification**
- **A combination of simulation, track testing, and on-road testing will be required to validate these systems sufficiently for safe, efficient, and effective deployment**
- **Collaboration of government, industry, and academia will be required to address these challenges and develop real-world products to maximize benefit for society**
- **University of Michigan has established a uniquely-successful PPP (MTC) and built a small-scale research, simulation, and education facility (Mcity, now in heavy demand)**
- **Numerous countries are acting to ensure their auto industries are at the forefront, and have built or are planning national-scale CAV testing facilities including Sweden, Korea, China, Japan, and likely others**



# The American Center for Mobility - Proposal

- **Build a U.S. National CAV research, testing, product development, validation, and certification facility**
  - **At the Willow Run site in Ypsilanti, Michigan with 335+ acres**
  - **In very close proximity to most auto industry OEMs and suppliers, with significant weather variation**
- **Built with cost-shared Federal and State funds (\$20M State/\$60M Federal over 2 yrs)**
- **Operated by a self-sustaining non-profit, guided and governed by University of Michigan**
- **Expected heavy utilization by industry, as well as multiple government agencies, and academia (\$20M over 3 years, mostly industry)**
- **Potential for co-location of federal laboratory space and facilities, though not required**





# Industry Research & Testing Needs

- **Accelerated development**, testing & verification of CAV technology
- **Validation and self-certification** of CAV technology
- Development, testing, & validation of **V2I and I2I** applications & standards
- Research, testing & **development of voluntary standards** for:
  - Crash avoidance & automation technology at high speeds and in urban environments
  - V2X communication, including infrastructure and hand-held devices
  - Automated operation on off-road, degraded, and unimproved surfaces
  - DSRC device communication protocol and interfaces
  - Cybersecurity measures and validation testing
  - Automated freight, trucking and transit of materials
  - Ground truth testing of automated vehicle safety technologies
  - In-use monitoring of vehicles/devices in the field





An aerial photograph showing a large-scale industrial demolition project. A massive rectangular area in the center of the frame is filled with rubble, twisted metal, and debris, indicating the recent destruction of a large building. To the left of this demolition site, there are several large, intact industrial buildings, including one with a prominent circular structure. In the bottom left corner, an airport tarmac is visible with several commercial airplanes parked. To the right of the demolition site, there are large, empty paved areas and some green fields. The entire scene is captured from a high angle, providing a comprehensive view of the project's scale and its proximity to other infrastructure.

**A Blank Slate...**



**The American Center for Mobility**

**High Speed**

**Residential**

**User Defined**

**Commercial**

**Urban**

**Off Road**

**Campus**

**Rural**

**LEGEND**

**CONSTRUCTION**

**STREET LIGHT**

**TRAIL**

**TUNNEL**

**STOCKPILE AREA**

**FUTURE EXPANSION AREA**

**40,000 SF GARAGE OFFICE BUILDING**

**STANDARD EXIT RAMP**

**LOOKOUT/CONTROL TOWER**

**STANDARD ENTRANCE RAMP**

**YANKEE AIR MUSEUM LOT**

**PROPOSED TUNNEL**

**SECURITY FORCE LOCATION**

**TRUCKS OF MAINTENANCE BUILDING**

**MAIN ACCESS GATE LOCATION**

**EXISTING RAIL CROSSING**

**PROPOSED RAIL CROSSING**

**HILLED TERRAIN**

**PHASE 1A - HIGH SPEED LOOP**

**TESTING LOOP ON TOP LEVEL**

**PUBLIC ONLY**

**PHASE 1B - HIGH SPEED LOOP**

**PHASE 1C - HIGH SPEED LOOP**

**PHASE 1D - HIGH SPEED LOOP**

**PHASE 1E - HIGH SPEED LOOP**

**PHASE 1F - HIGH SPEED LOOP**

**PHASE 1G - HIGH SPEED LOOP**

**PHASE 1H - HIGH SPEED LOOP**

**PHASE 1I - HIGH SPEED LOOP**

**PHASE 1J - HIGH SPEED LOOP**

**PHASE 1K - HIGH SPEED LOOP**

**PHASE 1L - HIGH SPEED LOOP**

**PHASE 1M - HIGH SPEED LOOP**

**PHASE 1N - HIGH SPEED LOOP**

**PHASE 1O - HIGH SPEED LOOP**

**PHASE 1P - HIGH SPEED LOOP**

**PHASE 1Q - HIGH SPEED LOOP**

**PHASE 1R - HIGH SPEED LOOP**

**PHASE 1S - HIGH SPEED LOOP**

**PHASE 1T - HIGH SPEED LOOP**

**PHASE 1U - HIGH SPEED LOOP**

**PHASE 1V - HIGH SPEED LOOP**

**PHASE 1W - HIGH SPEED LOOP**

**PHASE 1X - HIGH SPEED LOOP**

**PHASE 1Y - HIGH SPEED LOOP**

**PHASE 1Z - HIGH SPEED LOOP**

**PHASE 2A - HIGH SPEED LOOP**

**PHASE 2B - HIGH SPEED LOOP**

**PHASE 2C - HIGH SPEED LOOP**

**PHASE 2D - HIGH SPEED LOOP**

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**PHASE 2Y - HIGH SPEED LOOP**

**PHASE 2Z - HIGH SPEED LOOP**

**PHASE 3A - HIGH SPEED LOOP**

**PHASE 3B - HIGH SPEED LOOP**

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**Mannik Energy**  
SOLUTIONS



Double Overpass



Double Overpass



Rural

Urban

Commercial

Off Road

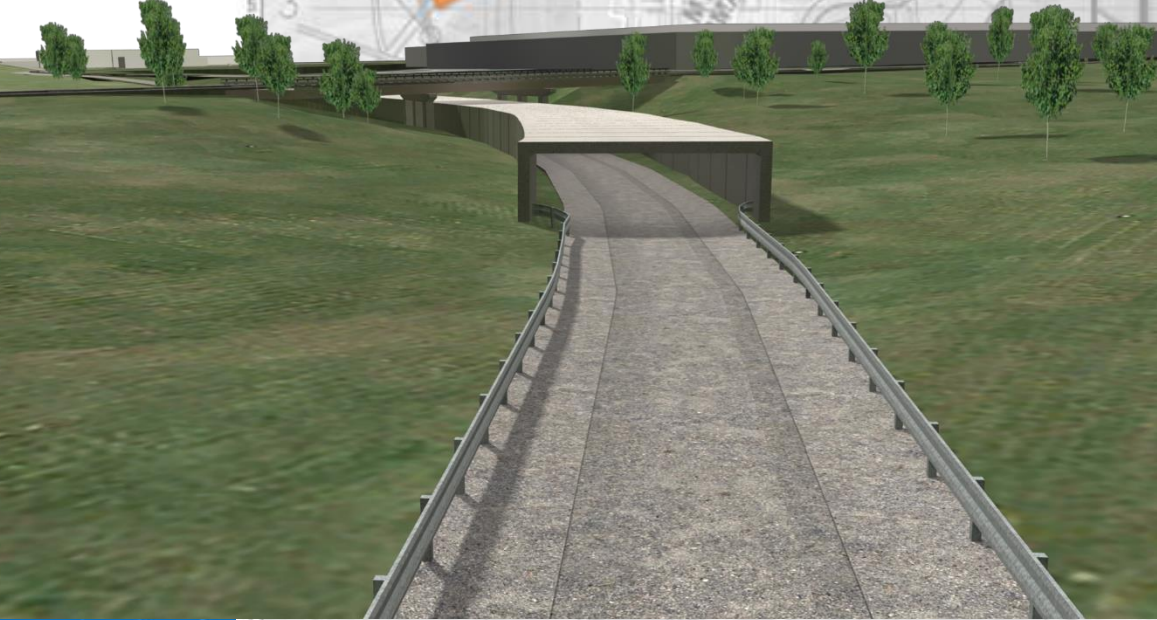
Railroad crossing



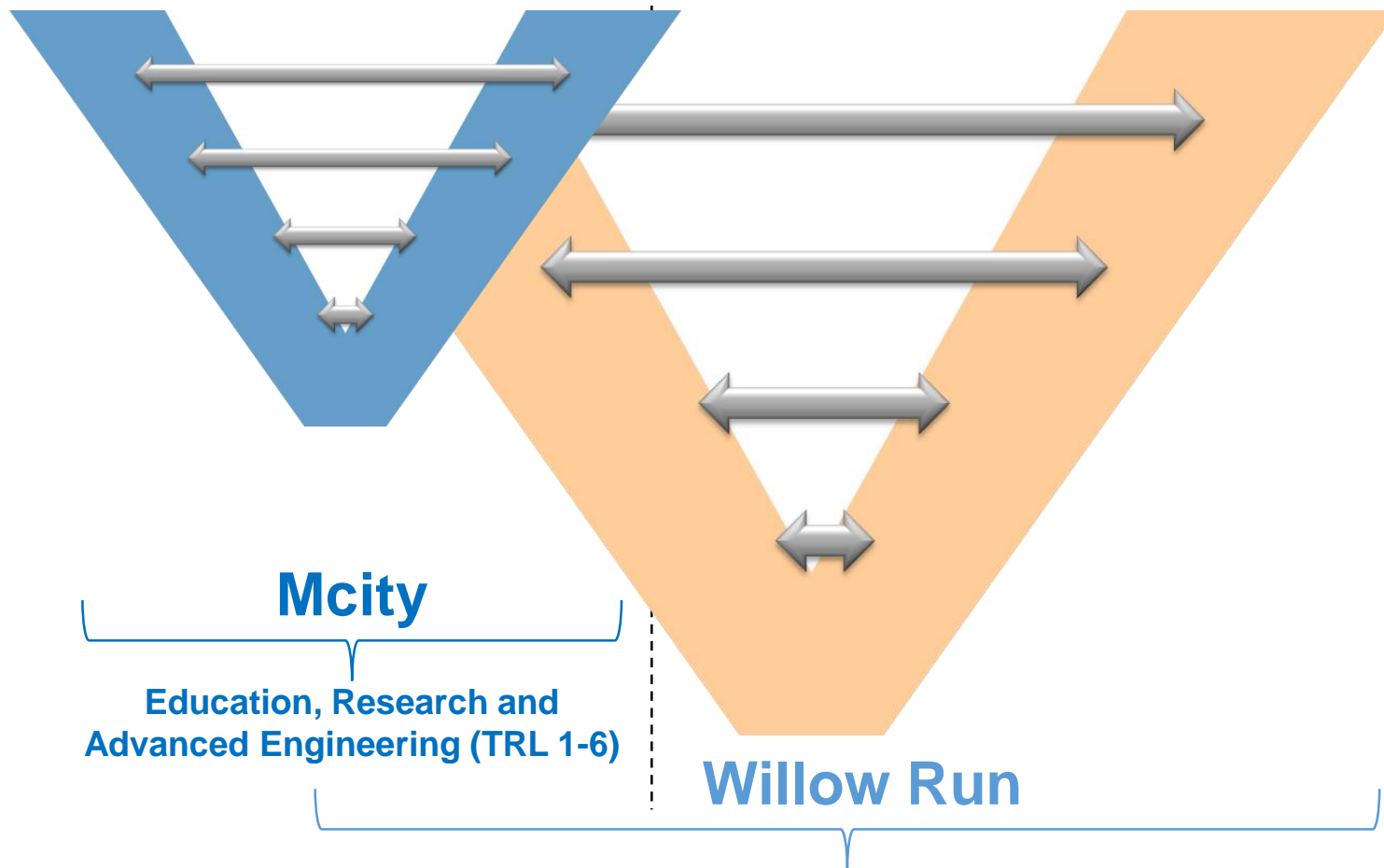
LEGEND

	Railroad crossing
	Street light
	Bus stop
	Fire station
	Police station
	School
	Hospital
	Church
	Library
	Park
	Playground
	Sports field
	Golf course
	Cemetery
	Water body
	Forest
	Wetland
	Agricultural land
	Residential land
	Commercial land
	Industrial land
	Undeveloped land









**Mcity**  
Education, Research and  
Advanced Engineering (TRL 1-6)

**Willow Run**

Development, Validation and  
Certification Services (TRL 5-9)

\* TRL = Technology Readiness Level



**The American Center of Mobility**

Willow Run, Ypsilanti, Michigan



# An Opportunity to Demonstrate American Leadership

- Numerous countries are investing in this emerging technology sector, but no country has yet established a firm leadership position.
- America has a unique opportunity to cement leadership by having the most diverse automotive and technology sectors and recognized reputation for innovation.
  - Which will attract further industrial investments
- The nation(s) that deploy these technologies most effectively will enjoy an inherent economic benefit over other nations, as it will minimize the cost of moving goods and people.
- Michigan is the most logical location to catalyze this work with the largest density of the automotive industry and highest concentration of engineers in the nation.
- There is also the opportunity to showcase the repurposing of an iconic American facility to productive use as a center of innovation in the greater Detroit Region.



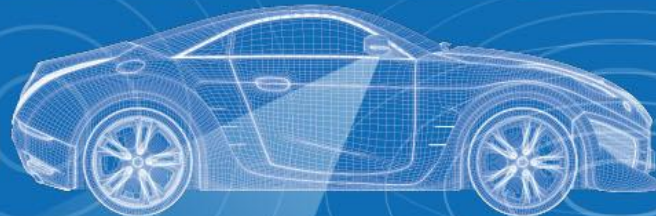


# Other “auto” countries are building facilities





# Other “auto” countries are building facilities



# Other states are re-purposing facilities, or using public roads



**The American Center of Mobility**

Willow Run, Ypsilanti, Michigan



# Other states are re-purposing facilities, or using public roads



**The American Center of Mobility**

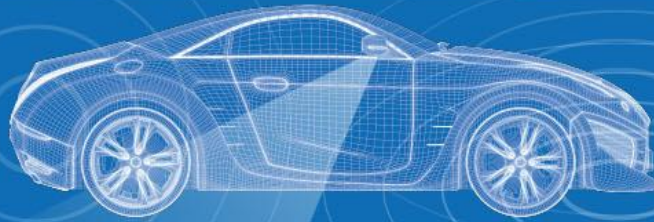
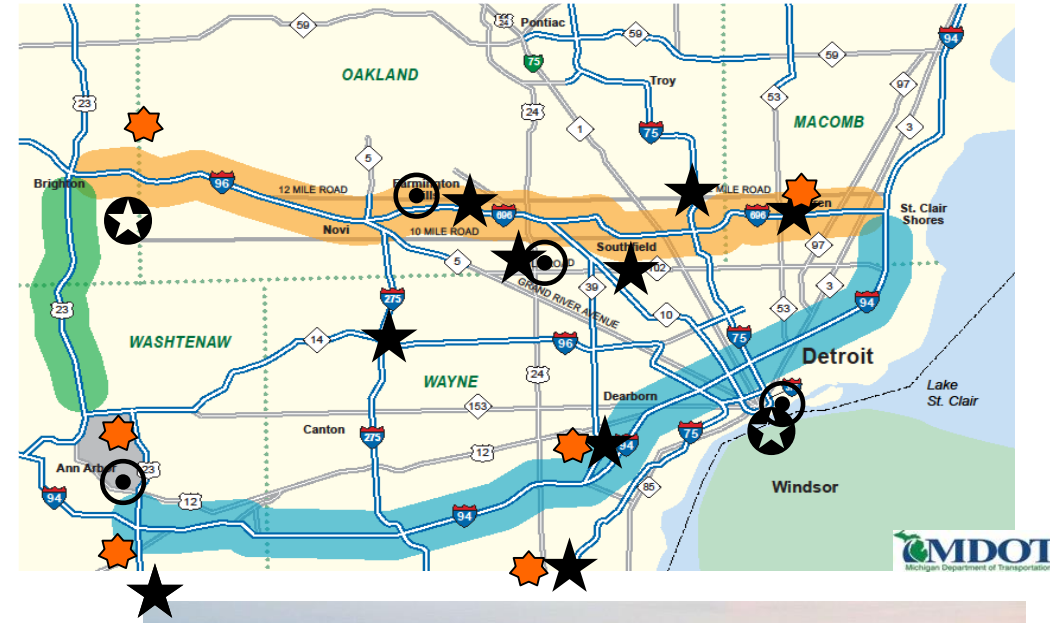
Willow Run, Ypsilanti, Michigan

# Why Michigan?

- Greatest concentration of the auto industry in the world
- Adjacent to university mobility initiatives
- Integrated with a forward-looking state DOT and government
- Unique site with both iconic and tangible qualities
  - Surrounded by connected infrastructure
  - Home of the Arsenal of Democracy
  - Co-located with commercial airport to facilitate travel
- More mobility-related assets than any other region

★ MDOT Facilities

★ LC Member HQ or Key Facility



**The American Center of Mobility** | Willow Run, Ypsilanti, Michigan



# Building on Michigan's Mobility Assets

- Center of Advanced Automotive Technology (CAAT) - Macomb Community College
- Coleman A. Young International Airport
- Connected Vehicle Trade Association (CVTA)
- Detroit Innovation District
- Detroit Test Bed
- FCA US LLC Headquarters and Technology Center
- Ford Motor Co. Research and Innovation Center
- General Motors Co. Technical Center
- Hyundai America Technical Center Inc.
- I-94 Truck Parking Information and Management System (TPIMS)
- Joint Ground Robotics Enterprise – TACOM
- Lawrence Tech University - Autonomous and Interconnected Vehicles Lab
- Michigan Cybersecurity Range
- Michigan International Speedway Vehicle Testing Facility
- Michigan Tech Research Institute
- Michigan Tech Transportation Institute
- Monroe, MI PrePass
- NextEnergy
- Nissan Technical Center North America
- Oakland County Connected Car Task Force
- Roush Building (Google Driverless Cars)
- The Smart Corridor
- Southeast Michigan Connected Vehicle Test Bed
- Southeast Michigan Transportation Operations Center (SEMTOC)
- Toyota Technical Center
- U.S. Army Tank Automotive Research (TARDEC)
- University of Michigan's Mcity
- Volkswagen Group of America Inc.

